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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CHRISS, JENNIFER A	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/636,078	HELWIG, GREGORY S.	
	Examiner	Art Unit	
	JENNIFER A. CHRISS	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,9-25,37-48 and 50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7,9-25,37-48,50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's Amendments and Accompanying Remarks filed on April 10, 2008 has been entered and carefully considered. Claims 1, 39 and 47 are rejected, claim 2, 8, 26 – 36 and 49 are cancelled and claims 1, 3 - 7, 9 - 25, 37 - 48 and 50 are pending. In view of Applicant's amendments to claims requiring that the veil is tough but flexible and stretchable with a softer feel than a comparable veil bonded with an equivalent amount of thermosetting acrylic binder, the Examiner has withdrawn all previously set forth rejections as being anticipated by or obvious over Chenoweth et al. as detailed in the Office Action dated December 13, 2007. The invention as currently claimed is not found to be patentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3, 14 – 15, 17 – 18, 20, 24, 39, 42 and 47 - 48 are rejected under 35 U.S.C. 102(e) as being anticipated by Christie et al. (US 2003/0060113 A1) as evidenced by the definition of "mineral wool" from Johnson's New Universal Cyclopaedia.

Christie et al. is directed to a thermoformable acoustic panel (Title).

As to claim 1, Christie et al. teach a panel comprising multi-component polymer fibers dispersed in a mineral fiber batt [0009]. Christie et al. teach that the multi-component polymer fibers comprise a sheath and a core where the sheath has a melting point lower than the core [0010]. Christie et al. teach that the mineral fibers provide integrity and strength to the panel [0027]. The Examiner equates the mineral fibers to the "structural fibers" and the multi-component polymer fibers to Applicant's "bicomponent fibers". According to Johnson's New Universal Cyclopaedia, mineral wool fibers have an irregular shape and have a significantly high melting point. The Examiner submits that the product of Christie et al. would be "tough but flexible and stretchable conformable veil with a softer feel than a comparable veil bonded with an equivalent amount of thermosetting binder" as the prior art meets the structural and or chemical limitations set forth. The burden is shifted upon the Applicant to evidence the contrary.

As to claim 3, Christie et al. teach that the mineral wool fibers have a diameter ranging from 3 – 6 microns [0027].

As to claim 14, Christie et al. teach in the Examples that the structural fibers can range in various amounts within the claimed range (pages 4 – 6).

As to claim 15, Christie et al. teach in Example 1 the use of the combination of mineral wool fibers and bicomponent fibers having polyethylene terephthalate as the core material [0061 – 0063].

As to claim 17, Christie et al. teach in Example 1 the use of the combination of mineral wool fibers and bicomponent fibers having a low melt polyethylene terephthalate as the sheath material [0061 – 0066].

As to claim 18, Christie et al. teach in Example 3 the use of the combination of mineral wool fibers and bicomponent fibers having a sheath of polyethylene and a core of polyethylene terephthalate [0066].

As to claim 20, Christie et al. teach that the first polymer of the sheath layer has a melting point between about 100 – 200 degrees C (212 – 392 degrees F) while the second polymer of the inner core has a melting temperature of at least 160 degrees C (at least 320 degrees F) (claims 1 – 3). Based on these ranges, Christie et al. teaches embodiments where the sheath has a melting temperature of at least 100 degrees F lower than the core.

As to claim 24, Christie et al. teach a thermoformable acoustic panel (Title) which according to Example 1 can be attached to a fiberglass scrim [0063]; the Examiner equates this to Applicant's "reinforced plastic article having a conformable surfacing

veil".

As to claim 39, Christie et al. teach a panel comprising multi-component polymer fibers dispersed in a mineral fiber batt [0009]. Christie et al. teach that the multi-component polymer fibers comprise a sheath and a core where the sheath has a melting point lower than the core [0010]. Christie et al. teach that the mineral fibers provide integrity and strength to the panel [0027]. The Examiner equates the mineral fibers to the "structural fibers" and the multi-component polymer fibers to Applicant's "bicomponent fibers". According to Johnson's New Universal Cyclopaedia, mineral wool fibers have an irregular shape and have a significantly high melting point. Christie et al. teach that the first polymer of the sheath layer has a melting point between about 100 – 200 degrees C (212 – 392 degrees F) while the second polymer of the inner core has a melting temperature of at least 160 degrees C (at least 320 degrees F) (claims 1 – 3). Based on these ranges, Christie et al. teaches embodiments where the sheath has a melting temperature of at least 100 degrees F lower than the core.

As to claim 42, Christie et al. teach in the Examples the use of low melt polyethylene terephthalate as the sheath material [0061 – 0066] and polyethylene as the sheath material terephthalate [0066].

As to claims 47 - 48, Christie et al. teach a panel comprising multi-component polymer fibers dispersed in a mineral fiber batt [0009]. Christie et al. teach that the multi-component polymer fibers comprise a sheath and a core where the sheath has a melting point lower than the core [0010]. Christie et al. teach that the mineral fibers provide integrity and strength to the panel [0027]. The Examiner equates the mineral

fibers to the "structural fibers" and the multi-component polymer fibers to Applicant's "bicomponent fibers". According to Johnson's New Universal Cyclopaedia, mineral wool fibers have an irregular shape and have a significantly high melting point. Christie et al. teach that the first polymer of the sheath layer has a melting point between about 100 – 200 degrees C (212 – 392 degrees F) while the second polymer of the inner core has a melting temperature of at least 160 degrees C (at least 320 degrees F) (claims 1 – 3). Based on these ranges, Christie et al. teaches embodiments where the sheath has a melting temperature of at least 100 degrees F lower than the core.

5. Claims 1, 4 – 6, 11, 39 – 40 and 47 – 48 are rejected under 35 U.S.C. 102(e) as being anticipated by Spittle (US 2004/0091326 A1).

Spittle is directed to a turf reinforcement mat (Abstract).

As to claim 1, Spittle teaches a lofty polymer grid integrally attached to a fibrous mat by needling a fibrous mat containing low melt temperature thermoplastic fibers and a lofty polymer grid followed by heating to an elevated temperature to fuse the fibers of the fibrous mat to the grid (Abstract). Spittle teaches that the lofty polymer grid comprises fibers made of polymers such as polyamide, polyolefin, polyester or any suitable thermoplastic [0019]. Spittle teaches that the melting point of the low melt temperature fibers is low enough to bond the lofty polymer grid without causing the latter to melt [0021]. Spittle teaches that the low melt temperature fibers may comprise bicomponent fibers having a sheath/core structure where sheath has a lower melting temperature than the core [0022 - 0023]. Spittle teaches that the melting point of the

sheath will be preferably 20 degrees C lower (68 degrees F lower), more preferably 40 degrees C or more lower (104 degrees F or more lower) [0021]. The Examiner equates the higher melting temperature fibers to Applicant's "structural fibers" and the bi-component fibers to Applicant's "bicomponent fibers". Spittle teaches that the reinforcement mat may additionally contain synthetic fibers which do not have a low melt temperature and will not fuse to the lofty polymer grid and indicate that the fibers may be kinked or crimped as the configuration aids in the entanglement of the fibers in the fibrous mat [0025]. The Examiner equates the crimped fibers to Applicant's "irregularly shaped fibers". The Examiner submits that the product of Spittle would be "tough but flexible and stretchable conformable veil with a softer feel than a comparable veil bonded with an equivalent amount of thermosetting binder" as the prior art meets the structural and or chemical limitations set forth. The burden is shifted upon the Applicant to evidence the contrary.

As to claim 4, Spittle teaches that the additional synthetic fibers may be crimped [0025].

As to claims 5 – 6 and 11, Spittle teaches that the additional synthetic crimped fibers may be polyesters, polyamides among other types of fibers [0025].

As to claim 39, Spittle teaches a lofty polymer grid integrally attached to a fibrous mat by needling a fibrous mat containing low melt temperature thermoplastic fibers and a lofty polymer grid followed by heating to an elevated temperature to fuse the fibers of the fibrous mat to the grid (Abstract). Spittle teaches that the lofty polymer grid comprises fibers made of polymers such as polyamide, polyolefin, polyester or any

suitable thermoplastic [0019]. Spittle teaches that the melting point of the low melt temperature fibers is low enough to bond the lofty polymer grid without causing the latter to melt [0021]. Spittle teaches that the low melt temperature fibers may comprise bicomponent fibers having a sheath/core structure where sheath has a lower melting temperature than the core [0022 - 0023]. Spittle teaches that the melting point of the sheath will be preferably 20 degrees C lower (68 degrees F lower), more preferably 40 degrees C or more lower (104 degrees F or more lower) [0021]. The Examiner equates the higher melting temperature fibers to Applicant's "structural fibers" and the bi-component fibers to Applicant's "bicomponent fibers". Spittle teaches that the reinforcement mat may additionally contain synthetic fibers which do not have a low melt temperature and will not fuse to the lofty polymer grid and indicate that the fibers may be kinked or crimped as the configuration aids in the entanglement of the fibers in the fibrous mat [0025]. The Examiner equates the crimped fibers to Applicant's "irregularly shaped fibers".

As to claim 40, Spittle teaches that the additional synthetic fibers may be crimped [0025].

As to claim 47, Spittle teaches a lofty polymer grid integrally attached to a fibrous mat by needling a fibrous mat containing low melt temperature thermoplastic fibers and a lofty polymer grid followed by heating to an elevated temperature to fuse the fibers of the fibrous mat to the grid (Abstract). Spittle teaches that the lofty polymer grid comprises fibers made of polymers such as polyamide, polyolefin, polyester or any suitable thermoplastic [0019]. Spittle teaches that the melting point of the low melt

temperature fibers is low enough to bond the lofty polymer grid without causing the latter to melt [0021]. Spittle teaches that the low melt temperature fibers may comprise bicomponent fibers having a sheath/core structure where sheath has a lower melting temperature than the core [0022 - 0023]. Spittle teaches that the melting point of the sheath will be preferably 20 degrees C lower (68 degrees F lower), more preferably 40 degrees C or more lower (104 degrees F or more lower) [0021]. The Examiner equates the higher melting temperature fibers to Applicant's "structural fibers" and the bi-component fibers to Applicant's "bicomponent fibers".

As to claim 48, Spittle teaches that the reinforcement mat may additionally contain synthetic fibers which do not have a low melt temperature and will not fuse to the lofty polymer grid and indicate that the fibers may be kinked or crimped as the configuration aids in the entanglement of the fibers in the fibrous mat [0025]. The Examiner equates the crimped fibers to Applicant's "irregularly shaped fibers".

Claim Rejections - 35 USC § 103

6. Claims 12 - 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spittle (US 2004/0091326 A1).

As to claims 12 and 16, Spittle teaches the claimed invention above but fails to teach that the polyester fibers have a linear density between 0.5 and 15 denier and a length of between 0.125 and 3 inches and the core comprises approximately 60% by weight of the bicomponent fiber. It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the denier and length of the fibers

and the weight percentage of the core since it has been held that, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). The burden is upon the Applicant to demonstrate that the claimed denier, length and weight percentage of the core are critical and have unexpected results. In the present invention, one would have been motivated to optimize the denier, length and weight percentage of the core based on the desire to create a turf reinforcement mat having the desired bonding strength, tensile strength and flexibility.

As to claim 13, Spittle teaches that the additional synthetic crimped fibers may comprise polyester [0025]. Although, it should be noted that Spittle does not specifically teach the use of polyethylene terephthalate, it would have been obvious to use polyethylene terephthalate as the polyester as it is the most common and readily available polyester.

7. Claims 7, 38 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie et al. (US 2003/0060113 A1) in view of Helwig et al. (US 5,972,166).

Christie et al. teach the claimed invention above but fail to teach that a portion of the structural fibers can comprise one or more randomly coiled or spiral fibers as required by claim 7 and that the structural fibers are glass fibers as required by claims 38 and 41.

Helwig et al. is directed to a nonwoven fiber mat (Title) suitable for reinforcing

applications (column 1, lines 20 - 25). The mat comprises reinforcement fibers such as glass fibers or synthetic fibers (column 2, lines 35 – 55) and binders that can be in fiber form (column 2, lines 60 – 65). Helwig et al. note that the binder is at least partially fused to bond the reinforcement fibers together (column 2, lines 64 – 65). Helwig et al. teach that coiled glass reinforcement fibers provide improved compressibility while providing improved strength and processability when substituted for glass wool fibers (column 3, lines 40 – 47 and column 9, lines 1 - 15). The irregularly shaped fibers including the coiled fibers have a fiber length ranging from 0.5 - 2.0 inches and a diameter ranging from about 5 to about 15 microns (column 3, lines 59 – 65 and column 5, lines 40 - 50) which overlap with Applicant's claimed ranges.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the coiled glass fibers as at least a portion of the reinforcing fibers of Christie et al. motivated by the desire to create a panel having improved strength, processability and compressibility.

8. Claims 9 – 10, 21 – 23, 37 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie et al. (US 2003/0060113 A1) in view of Helwig et al. (US 5,972,166), as applied above, and further in view of Handbook of Composites edited by S.T. Peters.

Christie et al. in view of Helwig et al. teach the use of glass fibers as the reinforcement fibers and indicate that the fibers can have a fiber length ranging from 0.5 - 2.0 inches and a diameter ranging from about 5 to about 15 microns (column 3, lines

59 – 65 and column 5, lines 40 - 50) which overlap with Applicant's claimed ranges. Additionally, Christie et al. teach the use of sheaths comprising low melt polyethylene, polyolefin (i.e. polypropylene) or low melt PET ([0064 - 0066] and claim 4) but fail to teach the use of the specific glass fibers selected from the list of claims 9, 21, 22 and 23. Additionally, Christie et al. fail to teach that the reinforcement fibers can be hollow fibers as required by claims 37 and 43.

Handbook of Composites discusses a number of glass compositions useful for creating fibers depending on the desired properties. For instance, e-glass fibers have excellent electrical insulation properties and is the premium fiber used in the majority of textile fiberglass production, c-glass fibers have excellent chemical resistance, s-glass fibers have high physical strength and hollow fibers are useful in applications where weight is a factor (page 134).

It would have been obvious to use e-glass, s-glass, c-glass or hollow fibers as suggested by Handbook of Composites as the glass fibers of Christie et al. in view of Helwig et al. motivated by the desire to create a panel having the desired properties such as strength, lightweight or high resistance to chemicals.

9. Claims 44 – 46 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie et al. (US 2003/0060113 A1) in view of McGregor et al. (US 5,571,592).

Christie et al. teach a panel comprising multi-component polymer fibers dispersed in a mineral fiber batt [0009]. Christie et al. teach that the multi-component

polymer fibers comprise a sheath and a core where the sheath has a melting point lower than the core [0010]. Christie et al. teach that the mineral fibers provide integrity and strength to the panel [0027]. The Examiner equates the mineral fibers to the "structural fibers" and the multi-component polymer fibers to Applicant's "bicomponent fibers". According to Johnson's New Universal Cyclopaedia, mineral wool fibers have an irregular shape and have a significantly high melting point. Christie et al. teach that the first polymer of the sheath layer has a melting point between about 100 – 200 degrees C (212 – 392 degrees F) while the second polymer of the inner core has a melting temperature of at least 160 degrees C (at least 320 degrees F) (claims 1 – 3). Based on these ranges, Christie et al. teaches embodiments where the sheath has a melting temperature of at least 100 degrees F lower than the core. Christie et al. teach that the panel may also comprise non-fibrous fillers in an amount ranging from 0 – 20% by weight or other additives [0030 – 0034].

Christie et al. fail to teach that the panel may additionally comprise a plurality of microspheres as required by claim 44 and specifically polymeric expandable microspheres as required by claim 50.

McGregor et al. is directed to an insulation material with improved loft characteristics. The preferred insulation comprises a multiple layered insulation with discrete fibers having energy expandable thermoplastic microspheres interspersed therein (Abstract). McGregor teaches that the introduction of expandable microspheres introduces little additional weight yet provides greater thermal insulative properties (column 12, lines 15 – 25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate expandable thermoplastic microspheres as suggested by McGregor et al. in the panel of Christie et al. motivated by the desire to create a material with greater thermal insulation properties.

Response to Arguments

10. Applicant's arguments with respect to claims 1, 3 - 7, 9 - 25, 37 - 48 and 50 have been considered but are moot in view of the new grounds of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. CHRISS whose telephone number is (571)272-7783. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 6 p.m., first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A Chriss/
Examiner, Art Unit 1794

/J. A. C./
Examiner, Art Unit 1794